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records are getting paid comparable amounts,”<sup>544</sup> Silva testified that he worked to “impose a sense of equity between the different fighters.”<sup>545</sup>

226. Given Zuffa’s formulaic compensation practices, it is unsurprising that a preliminary memorandum prepared for Zuffa by a law firm states that Fighter compensation levels move in tandem, regardless of where a Fighter falls in Zuffa’s compensation structure.<sup>546</sup> As Chief UFC Matchmaker Joe Silva explained to one Fighter’s manager: “As I said, I have a pay structure. I cannot mess it up for 1 fighter. I have to justify that to all the other managers... It’s great if other people want to pay him more but that’s not how my business model works.”<sup>547</sup> This is, in effect, a textbook case of a manager seeking to apply the concept of internal equity to a workforce.<sup>548</sup>

## 2. Econometric Evidence of a Compensation Structure

227. To determine what proportion of the variation in Bout Class compensation (above and beyond the average) is attributable to common factors, I performed a regression analysis that explains total Fighter compensation (in levels, as opposed to share of event revenues) using some of the same explanatory variables from my regression analysis in Part III.D.1 above. However, I exclude from this regression Fighter-specific performance variables from the FightMetric database (such as average strikes landed, average takedown attempts, and so on). The regression analysis

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544. Silva Dep. at 372:22-373:18 (“Q. Right. And so you wanted to make sure that you did your best to try to make sure that comparable fighters with comparable records are getting paid comparable amounts; is that fair? A. Yeah, that was my goal. Q. And one of the reasons why you did that is because you had to justify everyone’s pay to everyone else, and if you ...were doing this poorly or inefficiently, you’d constantly have fighters demanding more money, they’d say, hey, wait, you paid this guy this much and that guy that much, and you wouldn’t be able to justify to them if -- if you hadn’t been doing this well; is that right? A. It would just seem unfair to give somebody something that somebody else, equally deserving, didn’t get. Q. And you attempted, at least in your mind, to be fair, to impose a sense of equity between the different fighters; correct? A. I did.”).

545. *Id.*

546. ZFL-1472077, 123 (“wherever a fighter falls in UFC’s compensation structure, he has experienced steady and substantial increases in compensation since 2005”). See also TPS-0043214, April 25, 2015 Correspondence between UFC Chief Matchmaker Joe Silva and Agent Monte Cox (“We are moving the minimum wage up to 10 [for show] +10 [for win] and anyone who is below it is getting bumped up.”).

547. ZUF-00296703-706.

548. Milkovich, et al., *supra*, at 69-73.

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therefore relies upon common and objectively measurable factors only—such as weight class, rank, gender, placement on the card, year, country, and venue—to explain variation in observed Fighter compensation. The dependent variable is the natural log of a Fighter’s Event Compensation. The *R*-squared obtained from this regression is approximately 78 percent. Accordingly, over three-quarters of the observed variation in Fighter Compensation—above and beyond what can be explained by the sample average—is explained by common factors. This provides further evidence of a compensation structure determined by factors common to the Class as a whole. Given that those factors would likely be the same in the but for world, the same factors that determine relative differences in compensation between Fighters would remain, and thus a general increase in compensation in the but for world would likely affect all Class members. A rise in some corresponds to a rise in all, just as a reduction in some would result in a reduction in all, because the compensation structure interconnects the compensation of all or almost all Zuffa Fighters.

228. Next, I performed regressions to determine whether gains (or losses) in compensation are broadly shared across the Bout Class. Similar to analyses performed by the Plaintiffs’ expert economist in *High-Tech Employee*, these regressions measure the extent to which an increase in the compensation paid to Fighters overall is statistically associated with an increase in compensation for individual Fighters.<sup>549</sup> Specifically, I estimated regressions in which the dependent variable was set equal to an individual Fighter’s annual compensation per event, and the independent variable was set equal to either: (1) the average compensation per event paid to all other Fighters in *that* year; or (2) the average compensation per event paid to all other Fighters in

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<sup>549</sup>. See *Order Granting Plaintiffs’ Supplemental Motion for Class Certification, High-Tech Employee Antitrust Litig.*, No. 11-CV-02509 (N.D. Cal. Oct. 24, 2013), at 60-61. See also *Caves & Singer, supra*, at 5.

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the *prior* year. Because the variables are measured annually, these regressions do not include the same set of control variables as the regressions reported in Part III.D.1 above (such as controls for Fighter performance within a bout, venue fixed effects, etc.). Instead, they include fixed effects by Fighter, which control for all individual-specific, time-invariant Fighter characteristics. The variable *Trend* is an annual time trend; this controls for secular trends over time that may be correlated with compensation.

229. The results of this analysis, shown in Table 7 below, confirm that a Fighter's annual compensation per event is statistically significantly associated with the per-event compensation paid to other Fighters during that same year. When a one-year lag of other Fighters' compensation per event is used instead, the coefficient is again highly statistically significant. Put differently, gains (or losses) in Fighter compensation are shared broadly across Class members both within and across years. In particular, a one percent increase in other Fighters' per-event compensation is associated with an increase in individual Fighter compensation of approximately 0.159 percent to 0.175 percent. These results confirm that individual Fighter compensation per event moves together with the per-event compensation paid to other Fighters, both within and across years, providing further evidence of a pricing structure and, accordingly, of common impact flowing from generalized compensation suppression.

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TABLE 7: BOUT CLASS COMPENSATION STRUCTURE REGRESSIONS

Explanatory Variable	Dependent Variable: <i>ln(Annual Comp Per Event)</i>	
	(1)	(2)
<i>ln(Others' Annual Comp Per Event)</i>	0.175*** (2.01e-05)	n/a n/a
<i>ln(Others' Annual Comp Per Event)</i> [1-yr lag]	n/a n/a	0.159*** (0.000)
<i>Trend</i>	0.182*** (0.000)	0.170*** (0.000)
<i>Constant</i>	5.565*** (0.000)	5.935*** (0.000)
Fighter Fixed Effects?	Yes	Yes
Count of Fighter Fixed Effects	1,466	1,450
Observations	4,334	4,250
R-Squared	0.843	0.851

Notes: Robust *p*-values in parentheses. \*\*\* *p*<0.01, \*\* *p*<0.05, \* *p*<0.1.

**C. Standard Econometric Methods Further Demonstrate Directly That the Vast Majority of Bout Class Members Received Lower Compensation Than They Would Have In the But-For World**

230. To provide further proof of classwide impact, I used standard econometric methods common to the Class as a whole to determine whether the vast majority of Bout Class Members received lower compensation than they would have in the absence of the Challenged Conduct. Specifically, I used the regression models from Part III.D.1 to predict the but-for compensation share for each Fighter in each event in the but-for world. I then compared the predicted but-for compensation share with the share of Event Revenue that the Fighter actually received in that event.

231. As seen below, the results of this analysis indicate that, due to the Challenged Conduct, 98.8 percent of Fighters were undercompensated in at least one event, relative to the but-for world. In addition, 98.1 percent of Fighters were undercompensated, due to the Challenged Conduct, on net—that is, the aggregate share of Event Revenue received by these Fighters across all events in the regression database was less than the aggregate share that they would have received in the absence of the Challenged Conduct. Similar results are obtained even if I assume that Zuffa would have imposed foreclosure shares of 20 percent in the but-for world (i.e., if Zuffa

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were to foreclose competition to a far more limited degree absent the Challenged Conduct). Under either scenario, the vast majority of Class Members were undercompensated, relative to the but-for world.<sup>550</sup>

TABLE 8: SHARE OF BOUT CLASS MEMBERS UNDERCOMPENSATED

<b>But-For Foreclosure Share</b>	<b>Share of Bout Class Fighters Undercompensated In At Least One Event</b>	<b>Share of Bout Class Fighters Undercompensated On Net</b>
0%	98.8%	98.1%
20%	97.3%	96.3%

*Note:* This analysis conservatively utilizes the regression estimates from column (3) of Table 6 in Part III.D.1, corresponding to the Headliner market definition.

232. In summary, based on two independent methods, I conclude that all or almost all members of the Bout Class suffered antitrust injury as a result of the Challenged Conduct.<sup>551</sup>

#### V. COMMON IMPACT ON IDENTITY CLASS

233. In this section, I show that common impact can be demonstrated for two subgroups of the Identity Class. The first (“Identity Subgroup One”) consists of those who received at least some sponsorship payments, video game payments, merchandise royalty payments, or athlete outfitting policy payments from Zuffa during the Class Period, according to Zuffa’s records. The second (“Identity Subgroup Two”) consists of all Fighters who executed a PAR during the Class Period, regardless of whether these Fighters received compensation for use of their Identity in the actual world according to the JD Edwards or Merchandise Royalty Accrual database.<sup>552</sup>

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<sup>550</sup>. That a small percentage of a Fighters are not shown to have been undercompensated under this method does not imply that he or she was uninjured. As explained in the two-step method in Part IV.B, a generalized increase in compensation in the but-for world would have benefitted all or almost all Fighters.

<sup>551</sup>. Both methods of proving common impact to the Bout Class (the two-step method described in Part IV.B above, and the econometric method described here) reveal that all of the proposed representative plaintiffs for the Bout Class (namely, Cung Le, Jon Fitch, Brandon Vera, Luis Javier Vazquez, and Kyle Kingsbury) suffered impact in the form of artificially suppressed compensation due to the Challenged Conduct. *See* backup data.

<sup>552</sup>. My methods for proving common impact to the Identity Class reveal that the following proposed named plaintiffs for the Identity Class suffered impact in the form of artificially suppressed compensation due to the Challenged Conduct: Cung Le, Jon Fitch, Brandon Vera, Luis Javier Vazquez, Kyle Kingsbury, and Nate Quarry.

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234. As explained below, I conclude that all or almost all of Identity Subgroup One suffered antitrust injury, based on the same, two-pronged method that was used to prove impact for the Bout Class. With respect to Identity Subgroup Two, I conclude that all or almost all of these Class members have suffered antitrust injury, because all or almost all of these Class members would have received at least nominal, one-time payment at the time that their PARs were executed as compensation for use of their Identity in the but-for world.

**A. The Challenged Conduct Suppressed Identity Class Compensation**

235. As explained above, Zuffa has reduced the share of revenue paid to Fighters over time. Further, Zuffa pays a significantly lower share of its revenues to its Fighters than Strikeforce or Bellator pay to theirs. Moreover, Zuffa unilaterally restricted Fighter compensation by imposing a new sponsorship tax, appropriating sponsorship revenue that Fighters had previously received directly from sponsors.<sup>553</sup> In the but-for world, Zuffa's ability to restrict Fighter compensation in at least these three ways would have been curtailed, resulting in higher compensation for members of the Identity Class.

236. Quantifying the effect of the Challenged Conduct on the Identity Class is complicated by the fact that I do not have access to records of payments made directly from sponsors to Fighters, which means that I cannot quantify the extent to which such payments declined as Zuffa began to appropriate more sponsorship revenue for itself. As a result, my analyses of harm to Identity Class members are conservative. The data available to me are limited to payments in which Zuffa was an intermediary between the sponsor and the Fighter. Specifically, Zuffa's JD Edwards ("JDE") database reflects various line-item payments that Zuffa made to Fighters, including sponsorship payments, video game payments, merchandise royalty payments,

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<sup>553</sup>. See Part III.D.2, *supra*.

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and athlete outfitting policy payments (“JDE Identity Payments”).<sup>554</sup> From the beginning of the Class Period until December 30, 2016 (the last date for which JDE data were produced by Zuffa), there are 820 Fighters who received at least some JDE Identity Payments, all of whom are members of Identity Subgroup One. I supplement the JDE Identify Payments data with the Merchandise Royalty Accrual data, which contains royalty accruals for Fighters with signed merchandising agreements with Zuffa. This brings the count of Fighters in Identity Subgroup One up to 826.<sup>555</sup>

237. For Identity Subgroup One, the effect of the Challenged Conduct can be conservatively quantified by applying the results of the regression analysis of the Bout Class from Part III.D.1 above. These results show that the Challenged Conduct suppressed Bout Class compensation by a statistically and economically significant amount. For example, the results imply that a ten percentage-point decrease in foreclosure would cause the average Fighter’s compensation to increase by about 27 percent.<sup>556</sup> This estimate can also be applied to the Identity Class, because Zuffa’s foreclosure impaired other MMA promoters and their ability to provide competitive compensation alternatives to Fighters generally. Applied to Identity Subgroup One, this example implies that Fighters who received JDE Identity Payments or merchandise royalty accruals would see these payments increase by 27 percent, on average, in the but-for world. Regardless of the exact level of foreclosure that would have prevailed in the but-for world, the implied suppression in compensation for Identity Subgroup One is substantial.

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554. The JDE data also include unrelated payments such as reimbursements for travel expenses, as well as bout-related payments such as show and win purses. For purposes of my analysis here, I restrict the JDE data to sponsorship payments, video game payments, merchandise royalty payments, and athlete outfitting policy payments.

555. See Appendix 2.

556. See Part III.D.1, *supra*.

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238. With respect to Identity Subgroup Two, Zuffa recognized that Fighters were signing away certain Identity rights in perpetuity when they executed their PARs. A PAR signed by a Fighter generally gives Zuffa the “exclusive worldwide right to use of the Fighter’s name, likeness, biography and other aspects of the Fighter’s identity in connection with promotion of the Bouts or the UFC brand.”<sup>557</sup> These rights are “held by UFC in perpetuity and shall survive even the death of the Fighter.”<sup>558</sup> In the but-for world, all Fighters who executed PARs would have received at least some nominal compensation in exchange for signing away these rights in perpetuity. For Subgroup Two, this but-for compensation is independent of whether the Fighter received any other compensation, including any JDE identity payments or merchandise royalty accruals.

239. To estimate the amount of this nominal payment, I relied on a Zuffa document that includes a schedule of nominal, one-time, formulaic recommended payments in exchange for the use of their Identity in the UFC Electronic Arts video game series.<sup>559</sup> I understand that this document reflects payments that Zuffa offered to Fighters in exchange for Identity rights that Zuffa needed, but had neglected to acquire previously. According to the document, these payments were made according to a formulaic schedule by dividing Fighters into various tiers. The recommended payment ranges from \$2,500 to \$25,000 based on a Fighter’s “rating,” which included the following categories: “S, AAA, AA, A, B C, C-.”<sup>560</sup>

240. In the but-for world, all Fighters in Identity Subgroup Two would have received at least the minimum (lowest-tier) payment, which is \$2,500.<sup>561</sup> This estimate is conservative because

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557. DB-ZUFFA-00007015 at DB-ZUFFA-00007028. *See also* ZFL-0506593, ZFL-0175016, ZFL-0132594, ZFL-0469456, and ZFL-0086231; ZFL-1690436-444 (Fighter IP Guidelines for Consumer Products; provides Zuffa’s interpretation of what Identity rights are included in the PARs).

558. DB-ZUFFA-00007015 at DB-ZUFFA-00007078.

559. ZFL-1056348.

560. *Id.*, tab 2 (“Fighter Bonus Recommendation”).

561. *Id.*

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it is based the minimum nominal compensation that Fighters received from Zuffa in exchange for use of their Identity in the actual world, in the presence of the Challenged Conduct. In the but-for world with more competition, Fighters likely would have received more.

**B. Mechanisms Exist to Transmit Compensation Suppression Broadly Across Identity Class Members**

241. Record evidence confirms the existence of uniform compensation structures transmitting compensation suppression broadly across the Identity Class. Zuffa's documents indicate that—to the extent that members of the Identity Class were compensated at all—payments were governed by formulaic structures. As discussed in Section I.D, Fighters received three different kinds of compensation from Zuffa for the use of their identity: (1) merchandise royalty payments; (2) payments for participation in official sponsorship programs; and (3) video game payments. These payments followed formulaic structures.

242. With respect to merchandise royalty payments, the merchandising clauses in Fighter contracts applied to the vast majority of Fighters; Zuffa noted that “it’s important that the basic terms within the schedules of each agreement stay the same.”<sup>562</sup> Zuffa’s Merchandise Rights Agreements specified fixed percentages for royalties (either “10/20” or “15/30”).<sup>563</sup> A 2014

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562. See ZUF-00374356 (“Currently close to 100 fighters (past, current and rookies) as well as Octagon Girls, Cut Men and Announcers are signed to merchandise agreement. Few might have some exclusion but for the most part all have the same terms.... Any past, present and future fighter (Ultimate Fighter Show) that has or will have a following in the UFC/Pride/WEC will be offered a contract to participate in the merchandise program. Because we’re signing many fighters, it’s important that the basic terms within the schedules of each agreement stay the same. The only things that might be negotiated are the articles to which the fighter could or wants to participate in. This is because fighter might be bringing exclusive deals that would preclude him to participate in specific categories.”). See also ZFL-2244834 (In January 2010, Mersch demands that Clay Guida sign Merchandise Agreement; “and that directive comes from Dana.” Guida’s agent replies: “We are glad to extend the relationship as well. Our counsel feels the merchandise agreement is a bit restrictive and has advised us against participating for the time being. If that changes, I will notify you immediately.” Mersch replies: “That’s not an option. We are willing to discuss the language but he needs to sign the Mersch agreement per Dana.”).

563. See ZFL-1690436 at 39 (Under a 10/20 agreement, “[t]he fighter earns a 10% royalty off of revenue or a 20% royalty off of wholesale.” Under a 15/30 agreement, “[t]he fighter earns a 15% royalty off of revenue or a 30% royalty off of wholesale.”).

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summary indicates all Fighters included were in one of these two categories, receiving either 20 percent, or 30 percent royalties on “Fighter IP Sales.”<sup>564</sup> For royalties from JAKKS action figures, the UFC projected paying a percentage of royalty revenues to Fighters grouped into “4 Levels: A+, A, B, C” with each level receiving a specified percentage of UFC licensing revenue.<sup>565</sup>

243. Zuffa also calculated components of its sponsorship compensation formulaically. In 2015, Zuffa created a rigid compensation structure for apparel sponsorships when it implemented its Athlete Outfitting Program. In internal correspondence, Zuffa executives stated that “we have decided to move towards *one pay scale for all weight classes*,” and Zuffa documents listed compensation figures for champions, Fighters of various ranks, and non-ranked Fighters.<sup>566</sup> Under the original plan, the “athlete outfitting compensation [was] a tiered system based on each athlete’s ranking at the time of the weigh-in, irrespective of broadcast type and placement on the Fight Card.”<sup>567</sup> Ultimately, Zuffa decided to categorize Fighters into compensation tiers “based on their tenure in the UFC”<sup>568</sup> with “[t]enure to be defined as number of cumulative bouts performed in the UFC.”<sup>569</sup> The result was a “compensation model” with fixed event compensation for each tier.<sup>570</sup>

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564. ZFL-1049355. *See also* Batchvarova Dep. at 52:22-54:7 (“Q. Looking at the royalty on fighter IP sales, is it fair to say that every fighter for whom you had data either had a 20 percent royalty or a 30 percent royalty? ... A. Yeah, if that is what you guys determined, then, yes, that is the data that I had. It seems like it, yes.”).

565. “A+ level receives 30% of UFC licensing revenue; A Level receives 30% of UFC licensing revenue; B Level receives 20% of UFC licensing revenue; C Level receives 10% of UFC licensing revenue.” *See* ZFL-0472320 at 21-22; ZUF-00106610 (listing Fighters by rank).

566. ZFL-0887100 (emphasis added). (11/25/2014 email from Batchvarova to Cook and several others stating, “After speaking with Lorenzo, Lawrence, Joe Silva and Sean Shelby, we have decided to move towards one pay scale for all weight classes. Below is the revised pay scale... Champion: \$35,000; Ranked #1-#5: \$17,500; Ranked #6-#10: \$10,000; Ranked #11-#15: \$5000; Non-ranked: \$1,500”).

567. ZFL-0940372 at 93. *See also* Deposition of Denitza Batchvarova, January 25, 2017, 138:7-22; Pl. Ex. 111 at 37 (“The champion would receive \$40,000 per fight. The title challenger -- and this would be based on what their status was going into the bout -- would receive \$30,000 per fight. If you have 21 bouts or above, you would receive \$20,000. Sixteen to 20 bouts would be \$15,000. Eleven to 15 bouts would be \$10,000. Six to 10 bouts would be \$5,000. And one to five bouts, essentially starting into the UFC, would be \$2,500.”).

568. ZFL-1039853 at 58, 64; Batchvarova Dep. at 32:5-34:20 (“we came up with the methodology which is currently actually employed which is assigning by tenure, which is objective”).

569. *Id.*

570. *Id.*

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When Josh Barnett requested credit for his prior Pride fights under this tenure system, Zuffa responded “we aren’t going to make exceptions for one fighter.”<sup>571</sup> Finally, as explained above, the schedules Zuffa used to compensate Fighters for use of their Identities in video games are also formulaic.

244. In summary, the Challenged Conduct suppressed compensation for both Identity Subgroups, and there exist mechanisms to transmit this suppression broadly across Class Members. Accordingly, all or almost all members of Identity Subgroup One and Two suffered antitrust injury as a result of the Challenged Conduct.

## VI. AGGREGATE DAMAGES

245. Aggregate damages here are the sum of the underpayments by Zuffa across all Class Members, in each Class separately, during the Class Period attributable to the Challenged Conduct. In this section, I estimate aggregate damages to the Bout and Identity Classes. Aggregate damages to the Bout Class for the Class Period through June 30, 2017 are alternatively calculated, depending upon alternative factual underpinnings, at between \$811.2 million (on the low end) and \$1.6 billion (on the high end). Aggregate damages to the Identity Subgroup One are estimated at \$32.6 million from the beginning of the Class Period through June 30, 2017. Over the same time period, aggregate damages to Identity Subgroup Two are calculated at \$4.5 million.

246. It bears emphasis that, although Zuffa Fighters would earn higher compensation in the but-for world, not all Zuffa Fighters would necessarily be fighting for Zuffa in that newly competitive world. In the but-for world, other MMA promoters would have been able to attract more Fighters, would have earned higher revenue, and would have paid competitive compensation to those Fighters. Further, as shown in Part III.D.V above, output of Live MMA Events would

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<sup>571</sup>. ZFL-0979654.

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expend in a but-for world absent the Challenged Conduct, which could generate more revenue with which to compensate Fighters. Accordingly, for this and other reasons,<sup>572</sup> damages should not be constrained by the contemporaneous revenue and profit earned by Zuffa in the actual world.<sup>573</sup>

**A. Aggregate Damages Using Strikeforce and Bellator Benchmarks**

247. As explained in Part III.D.1, the share of revenue paid to Fighters by other MMA promoters is an economically relevant benchmark for estimating but-for compensation. Data produced by Strikeforce for 2009 and 2010 indicates that Strikeforce paid approximately 63 percent of its revenue to Fighters over this timeframe.<sup>574</sup> Data produced by Bellator for 2010 through 2015 indicates that Bellator paid approximately 44.7 percent of its revenue to Fighters over that timeframe.<sup>575</sup> According to its own financials, Zuffa itself has paid approximately 19.5 percent of its Event Revenue to the Bout Class during the Class Period.<sup>576</sup>

248. As seen in Table 9 below, Zuffa's Event Revenue for the Class Period through June 30, 2017 comes to approximately \$3.22 billion. Using the Strikeforce benchmark, I estimate aggregate damages at  $[\$3.22 \text{ billion}] \times [63.0\% - 19.5\%] = \$1.4 \text{ billion}$ . Using the Bellator benchmark, I estimate aggregate damages at  $[\$3.22 \text{ billion}] \times [44.7\% - 19.5\%] = \$811.2 \text{ million}$ .

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572. For example, Zuffa's owners sold the UFC in 2016 for \$4 billion, indicating that a rational firm would have been willing to borrow or raise capital in order to spend more on Fighters so as to grow a business that could one day sell for that amount of money. All of my damages estimates fall well below the \$4 billion acquisition price paid for Zuffa by WME-IMG.

573. Moreover, as explained in Part VII, Zuffa's profits appear to have been understated by Zuffa's accounting practices.

574. Calculated from ZFL-1472337, and ZFL-1472338.

575. Calculated from SBPCL00002101.

576. Calculated from ZFL-1514837, ZFL-1514870, ZFL-1514900, ZFL-1514933, ZFL-1514944, and ZFL-2764799. Due to limitations in the Strikeforce and Bellator data, I conservatively compare the share of total revenue that Strikeforce and Bellator paid to their Fighters, respectively, to the share of Event Revenue that Zuffa paid to its Fighters.

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TABLE 9: AGGREGATE DAMAGES TO BOUT CLASS (MILLIONS)  
THROUGH JUNE 30, 2017

Benchmark	Zuffa Event Revenue	Actual Fighter Share	But-For Fighter Share	Damages
Strikeforce Benchmark	\$3,215	19.5%	63.0%	\$1,399.64
Bellator Benchmark	\$3,215	19.5%	44.7%	\$811.23

*Notes:* Event Revenue includes PPV, broadcast, gate, and on-demand video revenues, as reported in Zuffa's financial documents. Zuffa's Event Revenue data are extrapolated for the first half of 2017.

#### **B. Aggregate Damages Using Zuffa Foreclosure Regression Benchmark**

249. As an alternative to the Strikeforce and Bellator benchmarks, I calculate damages using a third benchmark that does not rely on any information from other MMA promoters. Instead, the third benchmark is based on the statistical relationship between Zuffa's foreclosure share and its own Fighter Shares over time. To quantify this relationship, I estimated a regression model similar to that presented in Part III.D.1, except that all data points for Strikeforce prior to its acquisition by Zuffa are discarded from the regression model. I conservatively used the Ranked measure of the Relevant Input Market to calculate damages.

250. The aggregate damages estimates implied by the Zuffa foreclosure regression model are shown in Table 10. As seen below, aggregate damages for the Class Period through June 30, 2017 are estimated at \$894.3 million. These estimates assume conservatively that Zuffa's foreclosure share would fall to 30 percent in the but-for world (a level sufficient to cause anticompetitive effects), instead of falling to zero.

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TABLE 10: AGGREGATE DAMAGES TO BOUT CLASS (MILLIONS) THROUGH JUNE 30, 2017  
ZUFFA FORECLOSURE REGRESSION MODEL

Year	Zuffa Event Revenue	Actual Fighter Share	But-For Fighter Share	Damages
From Dec 16 2010	\$20.3	24.9%	46.8%	\$4.43
2011	\$408.9	19.4%	42.9%	\$96.1
2012	\$401.5	18.6%	47.9%	\$117.8
2013	\$482.2	20.3%	51.9%	\$152.4
2014	\$412.9	19.2%	46.1%	\$111.2
2015	\$490.5	19.5%	47.2%	\$135.8
2016	\$666.1	19.5%	47.2%	\$184.4
Through 6/30/2017 Est.	\$333.0	19.5%	47.2%	\$92.2
<b>TOTAL</b>	<b>\$3,215.4</b>	<b>19.5%</b>	<b>47.3%</b>	<b>\$894.3</b>

Notes: Event Revenue includes PPV, broadcast, gate, and on-demand video revenues, as reported in Zuffa's financial documents. Zuffa's Event Revenue data are extrapolated for the first half of 2017. Figures for 2010 truncated to conform to Class Period.

### C. Aggregate Damages Using Impact Regression Model Benchmark

251. My fourth measure of aggregate damages uses the impact regression model presented in Part III.D.1. By using the Strikeforce observations before Strikeforce was acquired by Zuffa, this method generates a larger coefficient on the foreclosure share relative to the regression model presented above. As before, I conservatively used the Ranked measure of the Relevant Input Market to calculate damages.

252. The aggregate damages estimates implied by the impact regression model are shown in Table 11. As seen below, aggregate damages for the Class Period through June 30, 2017 are estimated at \$1.6 billion. These estimates assume conservatively that Zuffa's foreclosure share would fall to 30 percent in the but-for world, instead of falling to zero.

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TABLE 11: AGGREGATE DAMAGES TO BOUT CLASS (MILLIONS) THROUGH JUNE 30, 2017  
IMPACT REGRESSION MODEL

Year	Zuffa Event Revenue	Actual Fighter Share	But-For Fighter Share	Damages
From Dec 16 2010	\$20.3	24.9%	64.1%	\$7.96
2011	\$408.9	19.4%	61.5%	\$172.3
2012	\$401.5	18.6%	71.3%	\$211.6
2013	\$482.2	20.3%	77.1%	\$273.9
2014	\$412.9	19.2%	67.6%	\$199.8
2015	\$490.5	19.5%	68.6%	\$241.0
2016	\$666.1	19.5%	68.6%	\$327.3
Through 6/30/2017 Est.	\$333.0	19.5%	68.6%	\$163.7
<b>TOTAL</b>	<b>\$3,215.4</b>	<b>19.5%</b>	<b>69.2%</b>	<b>\$1,597.6</b>

Notes: Event Revenue includes PPV, broadcast, gate, and on-demand video revenues, as reported in Zuffa's financial documents. Zuffa's Event Revenue data are extrapolated for the first half of 2017. Figures for 2010 truncated to conform to Class Period.

#### D. Aggregate Damages to the Identity Class

253. To estimate aggregate damages to Identity Subgroup One, I used the results of the Zuffa foreclosure regression model in Table 10 above. To do so, I multiplied the actual JDE Identity Payments made by Zuffa to Fighters by the ratio of the but-for Fighter Share to the actual Fighter Share from the Zuffa foreclosure regression model. For example, in 2012, Zuffa's actual JDE Identity payments to Fighters came to \$2.38 million, as seen in Table 12 below. In that year, the actual Fighter Share was 18.6 percent, while the but-for Fighter Share is 47.9 percent, as seen in Table 10 above. The but-for payments to Identity Subgroup One are calculated as [\$2.38 million]  $\times$  [47.9/18.6] = \$6.14 million. Aggregate damages for 2012 are [\$6.14 million] – [\$2.38 million] = \$3.76 million.

254. As seen below, aggregate damages for the Class Period through June 30, 2017 total approximately \$32.6 million for Identity Subgroup One.

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TABLE 12: AGGREGATE DAMAGES TO IDENTITY SUBGROUP ONE (MILLIONS)

Year	JDE Identity Payments	But-For Identity Payments	Damages
From Dec 16 2010	\$0.01	\$0.02	\$0.01
2011	\$0.32	\$0.70	\$0.38
2012	\$2.38	\$6.14	\$3.76
2013	\$0.89	\$2.27	\$1.38
2014	\$0.64	\$1.55	\$0.90
2015	\$4.87	\$11.80	\$6.92
2016	\$9.03	\$21.87	\$12.84
Through 6/30/2017 Est.	\$4.52	\$10.93	\$6.42
<b>TOTAL</b>	<b>\$22.7</b>	<b>\$55.3</b>	<b>\$32.6</b>

Notes: Payments for 2017 are extrapolated from 2016 figures. Figures for 2010 truncated to conform to Class Period.

255. I calculate the aggregate damages to Identity Subgroup Two by multiplying the estimated number of PARs executed from the beginning of the Class Period through June 30, 2017 by the minimal payment of \$2,500 discussed above. Based on production to date, there have been 1,196 PARs executed between the beginning of the Class Period and November 2015, the last date for which PARs have been produced. This represents an average of approximately 20 PARs per month. Extrapolating forward, I estimate that Zuffa's production would contain an additional 385 PARs if it extended until June 30, 2017, yielding a total of  $1,196 + 385 = 1,581$  executed PARs. Using the nominal payment of \$2,500 discussed above, aggregate damages to Identity Subgroup Two from the start of the Class Period through June 30, 2017 are calculated at  $[1,581 \times \$2,500] = \$4.0$  million. This estimate understates damages to Identity Subgroup Two: Zuffa was sometimes unable to produce an executed PAR covering a given Zuffa Fighter for a given Zuffa Live MMA Event, despite the fact that any Fighter appearing in a Zuffa Live MMA Event would have executed a PAR. These gaps in Zuffa's production occur approximately 13 percent of the time during the Class Period. If I correct my estimate to account for these missing PARs, then aggregate damages are estimated at  $\$4.0 \text{ million} / [0.87] = \$4.5$  million.

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256. In summary, the combined aggregate damages for Identity Subgroup One and Two are estimated at \$37.2 million (equal to \$32.6 million from Subgroup One plus \$4.5 million from Subgroups Two, accounting for rounding). There is substantial overlap between the two Subgroups: Approximately 64 percent of the members of Identity Subgroup One are also members of Identity Subgroup Two, and approximately 67 percent of the members of Identity Subgroup Two are also members of Identity Subgroup One.

#### **VII. ZUFFA'S LIKELY EFFICIENCY DEFENSES ARE UNAVAILING**

257. The record includes efficiency defenses of some or all of the Challenged Conduct that Zuffa, or economists acting on its behalf, have proffered in past proceedings. These efficiency defenses include the following claims: (1) that the Challenged Conduct has increased MMA output;<sup>577</sup> (2) that the Challenged Conduct incentivized investments promoting Live MMA Events generally and individual Fighters specifically;<sup>578</sup> and, (3) that the Challenged Conduct has increased Fighter compensation.<sup>579</sup> As explained below, the record evidence I have reviewed to date, and my own analyses, does not support Zuffa's prior claims that the Challenged Conduct has had any of these effects, and in fact, directly contradicts such claims.

258. Zuffa's efficiency defenses, like the claims made by owners in other professional sports leagues in the past, amount to the claim that Zuffa must be permitted to exercise monopoly

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577. In a 2015 letter to the FTC, Zuffa attorney Nicholas Gaglio claims five efficiencies associated with multi-bout contracting, the first three of which can be summarized as the claim that multi-bout contracts increased MMA output. *See* Letter to Stuart Hirschfeld, FTC Northwest Regional Office, from Nicholas E.O. Gaglio, Axinn, Oct. 23, 2015, ZFL-1472063-76 [hereafter *Gaglio Letter*], at 063, claiming that multi-bout contracts:

- 1) Allow the UFC to establish a viable business and offer a new product;
- 2) Leads to higher MMA output by reducing transaction costs and delays inherent in planning and arranging bouts;
- 3) Enables the UFC to present competitive matches that fans demand;
- 4) Incentivizes marketing investment in promotional platforms and individual athletes;
- 5) Increases athlete compensation and other benefits such as insurance.

578. *Id.*

579. *Id.*

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and monopsony power for the good of the sport. But the evidence from other professional sports, and the extensive sports economics literature, indicate just the opposite: Elimination of the Challenged Conduct would likely benefit Fighters, consumers, and the MMA industry and sport generally.

**A. Zuffa’s Claim That the Challenged Conduct Increased Output**

259. As explained in Part III.C, the Challenged Conduct restricted output in both the Relevant Input Market and the Relevant Output Market. In contrast, Zuffa has claimed that output has expanded as a result of its exclusive multi-bout contracts and its horizontal acquisitions. Neither claim is supported by the evidence.

**1. Zuffa’s Claim That Multi-Bout Contracts Increased Output**

260. In a 2015 letter to the FTC, Zuffa claimed that “Zuffa’s success—and other promoters’ subsequent success that Zuffa has facilitated—would not have been feasible without multi-fight contracts.”<sup>580</sup> Zuffa claims that the UFC used exclusive, multi-fight contracts, before its 2001 acquisition, are currently used by rival promoters such as Bellator, and “have been ubiquitous for over 15 years, during which MMA has transformed from an obscurity into an emerging sport.”<sup>581</sup> Thus, Zuffa argues, “[g]iven the expansion of Live MMA Events over the years, it is reasonable to suggest that multi-bout contracts have played an integral part of the nascent sport’s output expansion.”<sup>582</sup>

261. Zuffa’s claim that its own growth was facilitated by its long-term exclusive contracts is not an efficiency defense at all: Even if it were correct, Zuffa simply assumes that what is good for Zuffa is good for the sport as a whole. That is not antitrust analysis; Zuffa’s logic

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<sup>580.</sup> *Gaglio Letter* at 064.

<sup>581.</sup> *Id.*

<sup>582.</sup> *Id.* at 065.



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would excuse any antitrust defendant that has achieved dominance by harming competition. Moreover, and by contrast, my own analysis shows that the Challenged Conduct restricted the supply of Live MMA Events in the Relevant Output Market.<sup>583</sup>

262. Zuffa's claim that *other* MMA promoters have achieved success by mimicking the Challenged Conduct is contradicted by the evidence. Instead of achieving "success," other MMA promoters have consistently been impaired from competing effectively, driven out of business, been unable to prevent Zuffa from poaching top talent,<sup>584</sup> been acquired by Zuffa, been confined to "feeder league" status, and so on.<sup>585</sup>

263. To the extent that other MMA promoters did engage (however unsuccessfully) in contracting practices similar to the Challenged Conduct, that would provide no economic justification for the Challenged Conduct. If anything, competitive options for Fighters, and competition generally, are even more restricted when all firms in the market commit to an exclusionary strategy. In addition, conduct can be innocuous when practiced by a firm without market power yet anticompetitive when practiced by a firm, like Zuffa, with market power.

264. Zuffa's straw-man defense of "multi-fight contracts,"<sup>586</sup> also assumes incorrectly that the only alternative to the Challenged Conduct is contracting "done on a Live MMA Event-by-event basis."<sup>587</sup> If Zuffa's contracts locked up Fighters for a significantly shorter period of time (such as 12 months as opposed to well over 36 months),<sup>588</sup> and if free-agency without undue influence from Zuffa became a near certainty after 12 months, then the Fighter contracts could

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583. See Parts III.D.5 and III.B.2, *supra*.

584. See Part II.C, *supra*.

585. *Id.*

586. *Gaglio Letter* at 064.

587. *Id.* at 067.

588. See Part III.B, *supra*.

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well achieve the claimed “benefits” without as many anticompetitive effects. The controversy here is not the existence of multi-fight contracts *per se*, but instead whether the *degree* of the restrictions contained in Zuffa’s contracts (given Zuffa’s monopsony power), and the practices Zuffa uses to maintain its monopsony power, are sufficiently high so as to generate anticompetitive effects that outweigh any possible procompetitive benefits. My analysis shows that it is.<sup>589</sup>

265. Finally, Zuffa argues that multi-bout contracts “incentivize effort from the athlete, even if that effort could produce a ‘loss’ on their record.”<sup>590</sup> In the presence of single-bout contracts, Zuffa claims, a Fighter would be inclined to “employ a defensive, ‘boring’ strategy (like ‘holding on’ with little movement) that damages fan interest in the athlete, the promotion, and the sport[.]”<sup>591</sup> But this makes little economic sense given that the contracts are nearly all one-way ratchets, offering Fighters no guarantee that they will not be cut after a single loss.<sup>592</sup>

266. To substantiate its claim that Zuffa’s one-sided, multi-bout contracts encourage risk taking, Zuffa offered an analysis of Dr. Roger Blair, a former Zuffa economist retained in connection to the FTC’s second investigation of Zuffa’s practices in 2015.<sup>593</sup> According to Dr. Blair’s “UFC Cut Fighters Analysis,” between 2008 and 2015, “only” 20 percent of Fighters who lost their initial bout were released, and “only” half of those who lost their first two bouts got released.<sup>594</sup> These data contradict, and do not support, Zuffa’s claims—a 20 to 50 percent chance of being released after a loss is arguably quite significant. Dr. Blair provides no evidence that a Fighter facing these odds would have the requisite job security to partake in strategies that,

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589. See Part III.C, *supra*.

590. *Gaglio Letter, supra*, at 075.

591. *Id.*

592. See Part II.B, *supra*.

593. *Gaglio Letter, supra*, at 076, n.27 (citing UFC Cut Fighters Analysis, 2008-2015, prepared by Dr. Blair’s team).

594. *Id.* at 074.



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according to Dr. Blair, would be incentivized by long-term contracts. Indeed, the share of fights ending in decisions, rather than by knockouts or submissions, has increased over time, from 25 to 30 percent from 2001 to 2007, to about 50 percent by 2010, where it has remained.<sup>595</sup> This sharp increase in decisions suggests that, as Zuffa's monopsony power and foreclosure share has increased over time, UFC Fighters have become less willing to assume the risks of winning by knockout or submission, and more willing to settle for a (less exciting) decision. Thus, UFC Fighters have not been incentivized by the exclusionary provisions of their contracts to take significant risks, as claimed by Zuffa. Indeed, the increasing share of decisions suggests the opposite.

## **2. Zuffa's Claim That Its Horizontal Acquisitions Increased Output**

267. Professor Rodney Fort, one of Zuffa's experts from the FTC's first investigation of Zuffa's practices in 2011, claimed that Zuffa's horizontal acquisitions of MMA promoters has increased MMA output because "the number of Zuffa events has continued to increase following Zuffa's acquisition of WEC, WFA, Pride, and Affliction."<sup>596</sup> Dr. Andrew Dick, another of Zuffa's prior experts from the FTC's 2011 investigation, also pointed to increases in Zuffa's output over time as evidence of the acquisitions being procompetitive.<sup>597</sup>

268. That Zuffa's *own* output may have increased over time fails to demonstrate the Challenged Conduct increased MMA *industry* output. Any firm that monopolizes an industry through horizontal acquisitions (and/or other anticompetitive conduct) may find that its own output

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595. See <https://twitter.com/MMAGraphs/status/887735294845497348/photo/1>

596. *Declaration of Rodney D. Fort Submitted to the Federal Trade Commission on Behalf of Zuffa, LLC* (December 1, 2011), ZFL-1212308 [hereafter *Fort Report*] at 330; see also 355 (showing the annual number of UFC PPV events from 2001 - 2010).

597. See *Declaration of Andrew R. Dick, Ph.D., Submitted to the Federal Trade Commission on Behalf of Zuffa, LLC* (December 1, 2011), ZFL-1212452 [hereafter *Dick Report*] at 472; see also 547-550 (identifying, from 2001 - 2010, the annual number of UFC PPV events, paid attendance at UFC PPV events, North American UFC PPV buys, and closed circuit locations for UFC PPV events).

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has increased. From an antitrust perspective, however, the relevant question is whether *industry* output is higher or lower than it would have been in the absence of Challenged Conduct. Professor Fort also claimed that Zuffa's horizontal acquisitions allow Zuffa to "stage higher quality fights by leveraging a larger stable of fighters."<sup>598</sup> Once again, this confuses conduct that is beneficial to Zuffa with conduct beneficial to the industry as a whole. Zuffa's ability to harm competition hinges on its ability to deny rivals access to the inputs necessary to stage high-quality fights, which leaves Zuffa as the only promoter capable of consistently staging high-quality fights.<sup>599</sup> In any case, my analysis shows that the Challenged Conduct restricted the supply of Live MMA Events in the Relevant Output Market: The decline is driven by a drop in non-Zuffa events, with Zuffa's supply of Live MMA Events not increasing by enough to make up for the difference.<sup>600</sup> For example, the supply of Fights featuring Headliners has declined significantly since the Strikeforce acquisition.<sup>601</sup>

269. The claim that the Challenged Conduct is necessary to produce high-quality matchups also incorrectly assumes that two high-quality Fighters signed under different promoters cannot be matched against each other. But there is nothing that inherently prevents matchups between Fighters from different promoters. This is standard practice in boxing, and could occur in a more competitive MMA industry. In the current environment, Zuffa relies on the Challenged Conduct to maintain its dominant position, and thus Zuffa faces clear disincentives to avoid cross-promotional matchups, which might allow other MMA promoters to challenge its dominance. Tellingly, in a market in which Zuffa is not dominant (boxing), Zuffa revealed its willingness to

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598. *Fort Report, supra*, at 331.

599. *See* Part III.B, *supra*.

600. *See* Part III.D.4, *supra*.

601. *Id.*

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pursue a matchup with another promoter (albeit a non-MMA promoter), having agreed to co-promote the Conor McGregor vs. Floyd Mayweather boxing match. In other words, in a competitive marketplace, where no promoter is dominant, it is in the interest of each promoter to stage the most competitive bouts, even if that means matching Fighters from different promoters. That is not true in MMA today due to the Challenged Conduct, but would be true in the absence of that conduct.

**B. Zuffa's Claim That the Challenged Conduct Increased Fighter Compensation**

270. As explained in Part III.C, the Challenged Conduct afforded Zuffa the power to substantially suppress compensation paid to its Fighters. In contrast, Zuffa's experts have elsewhere claimed that Zuffa pays competitive compensation to Fighters. As explained below, these analyses do not support Zuffa's claim.

**1. Zuffa's Claim That Increased Fighter Compensation Over Time Shows That Fighter Compensation Is Competitive**

271. Dr. Dick has pointed to "steadily increased fighter compensation" over time as evidence that Fighter compensation is competitive.<sup>602</sup> Dr. Dick's analysis is based on changes in the levels of Fighter compensation between 2005 and 2010 for Zuffa Fighters at the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles.<sup>603</sup> For example, Dr. Dick's data show Zuffa's median Fighter compensation per event decreasing from approximately \$10,000 in 2001 to \$6,000 in 2005, then increasing to approximately \$22,500 by 2010.<sup>604</sup> Similar patterns are observed for the 25<sup>th</sup> and 75<sup>th</sup> percentiles.<sup>605</sup>

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602. *Dick Report, supra* at 493-494.

603. *Id.* at 568-570. Dr. Fort submitted identical analyses. *See* ZFL-1212308 at 348-350.

604. *Id.* at 569. The increases over time are more modest when Dr. Dick deflates his data using compensation indices from other sports, or using a BLS index of compensation for employees in arts, design, entertainment, sports, and media occupations.

605. *Id.* at 568, 570.

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272. Dr. Dick's analysis fails to control for the fact that Zuffa's revenues—and Zuffa's revenues per Fighter—have increased very substantially over time. This means that Fighter productivity (or “marginal revenue product”) has increased, which would predict under competitive circumstances an even greater increase in Fighter compensation. Over the time period studied by Dr. Dick (2001-2010), Zuffa's Event Revenue per Fighter per event has increased by more than a factor of ten.<sup>606</sup> Yet Dr. Dick's own data show that Fighter compensation has increased by significantly less than this over the same interval, by a factor of about two to three.<sup>607</sup> Thus, Dr. Dick's own data indicate that Fighter compensation has failed to keep pace with increases in Fighter productivity, indicating that Zuffa has been able to exercise monopsony power over its Fighters over time. Moreover, the relevant question is not whether Fighter compensation has grown in the absolute sense, but rather whether Fighter compensation would have been higher (or lower) in the absence of the Challenged Conduct.<sup>608</sup>

273. My own regression does not suffer from these two flaws. *First*, my regression accounts for Zuffa's increasing revenues by measuring Fighter compensation as a percentage of revenue. *Second*, my regression controls for a host of other factors that may also influence Fighter compensation, unlike Dr. Dick's analysis, which allows me to identify (and isolate) the effect of the Challenged Conduct on Fighter compensation: My regression measures the effect of Zuffa's

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606. According to Zuffa's financial documents, Zuffa's Event Revenue per Fighter per event increased from \$55,806 in 2001 to \$599,207 in 2010.

607. Dr. Dick's data show that Zuffa Fighter compensation at the 25th percentile increased from just over \$4,000 in 2001 to just under \$12,000 in 2010. Zuffa Fighter compensation at the 50th percentile increased from approximately \$10,000 in 2001 to approximately \$22,500 in 2010. Zuffa Fighter compensation at the 75th percentile increased from approximately \$20,000 in 2001 to approximately \$60,500 in 2010. *See* ZFL-1212452 at 568-570.

608. Scott Coker, former CEO of Strikeforce, testified that Fighters received significantly lower offers after Strikeforce was acquired. Coker testified that, after the Strikeforce acquisition “[a] lot of people were disappointed ... [b]ecause you know, I had managers call me and say: Now our purses are going to go down. Now there's only one buyer and it's not going to be good for MMA as an industry.” Coker Dep. 135:10-25. One year after the acquisition, managers were telling Coker that “offers are about 20 percent less than when you guys [Strikeforce] were here.” *Id.* 137:14-21.

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foreclosure on Fighter compensation, all other things held constant, as opposed to simply tracking changes in compensation over time.<sup>609</sup> This distinction is important because the relevant comparison is not between Fighter compensation at arbitrary points in time, but rather between what Fighters earned in the actual world and what they would have earned in the absence of the Challenged Conduct, under more competitive conditions.

**2. Zuffa's Claim That Increased Fighter Compensation After Horizontal Acquisitions Shows That Fighter Compensation Is Competitive**

274. Dr. Dick compares compensation paid to Fighters for WEC, Pride, and Strikeforce before and after Zuffa acquired these promoters, and finds that the *level* of compensation increased for most Fighters.<sup>610</sup> Dr. Dick claims that this is evidence that Challenged Conduct was procompetitive.<sup>611</sup> Dr. Dick is wrong.

275. Dr. Dick's analysis fails to control for the fact that (due in part to the Challenged Conduct) non-Zuffa promoters earned revenues far below Zuffa's. As explained in Part III.D.1, the correct comparison is between the *share* of revenue that would-be rivals paid to their Fighters and the *share* of revenue received by Zuffa Fighters. The data show plainly that other MMA promoters paid a much higher share of their revenue to Fighters than did Zuffa, and my regression analysis yields the same result—after controlling for a host factors that may also influence Fighter compensation, unlike Dr. Dick's analysis.

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609. See Part III.D.1, *supra*. Dr. Dick does present alternative analyses controlling for a small fraction of the control variables used in my own regression analysis. See *Dick Report, supra*, at 571-573 (showing compensation adjusted for the fighter's result in the current fight and his previous three fights, event type, indicators for knockout of the night, submission of the night, letter of agreement bonuses, and fighter fixed effects). In addition, none of Dr. Dick's analysis accounts for Zuffa's increasing revenue over time.

610. *Id.* at 495-500.

611. *Id.* at 501.

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### 3. Zuffa's Claim That its Profit Data Show that MMA Fighter Compensation Was Competitive

276. In connection to the FTC's second investigation of Zuffa's practices in 2015, Dr. Blair attempts to demonstrate that Fighter compensation is substantial by reporting Fighter compensation as a proportion of Zuffa's profits, ranging from 38 percent to 70 percent between 2009 and 2014.<sup>612</sup> But Fighters' share of revenue—not profit—is the economically relevant metric. Elementary economics shows that, under competitive conditions, Fighters will earn a share of revenue commensurate with their productivity.<sup>613</sup> No such relationship holds for profit: If a firm's profit is  $X$  percent of its revenue, and if the firm's labor costs come to  $Y$  percent of its revenue, comparing  $Y$  to  $X$  does not yield insight into whether or not workers' compensation is competitive. Zuffa's profits depend on *all* of its revenue streams and *all* of its costs. Profits could therefore fluctuate for myriad reasons unrelated to the Challenged Conduct—even as foreclosure squeezes Fighters' revenue share.

277. Further, accounting profits reflect multiple decisions by the Zuffa that are not directly related to Fighters, such as investment in other areas, management bonuses, substantial payouts to a handful of shareholders of the closely held private company, litigation costs, and other unrelated expenses. Zuffa's profits also appear to have been understated by Zuffa's accounting practices. Zuffa's purported "costs" include corporate jet expenses, bonuses, and management fees.<sup>614</sup> Such "costs" may actually reflect excess economic profit.<sup>615</sup> In addition, there is record

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612. Roger Blair, "Presentation of Observations Based on MMA Data," ZFL-1470673, at 80-81.

613. See, e.g., ROY RUFFIN & PAUL GREGORY, PRINCIPLES OF MICROECONOMICS (Harper Collins 5th ed. 1993), at 331-336.

614. RAINE0018791 at 807-808 ("[A]ccounts for all private jets used by current shareholders: these costs are well-above what is required to operate the business and will not be a go forward expense under the new ownership... the majority of plane expense can be added back as these services are not necessary to operate the business... Supplemental bonus is not an ordinary business expense and has been structured based on current ownership. It is essentially an equity participation plan that allows for extraordinary bonuses given that the business is

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evidence of an “historical lack of cost controls”<sup>616</sup> at Zuffa: A detailed review of Zuffa’s cost structure by investment bank Goldman Sachs identified “actionable cost savings...representing approximately 25% of the UFC’s addressable cost base,”<sup>617</sup> which were “expected to be recognized within 24 months.”<sup>618</sup> Again, although Zuffa’s accountants treated these items as costs, they may actually reflect excess economic profit. Thus, Dr. Blair’s profit analysis would be rendered unreliable by Zuffa’s accounting practices, even if it had a sound economic basis (which it does not).

278. Similarly, Professor Fort has argued on Zuffa’s behalf, based on data spanning 2006 to 2010, that “profits have not increased with Zuffa’s acquisition of the assets of other promoters.”<sup>619</sup> As noted above, Zuffa’s profits may fluctuate for reasons unrelated to the Challenged Conduct, and are likely understated due to Zuffa’s accounting practices. Even so, Zuffa’s financial data do not show what Professor Fort claims. Zuffa’s profits actually *increased* substantially over the timeframe analyzed by Dr. Fort: From 2006 to 2010, according to Zuffa’s own financial statements, EBITDA increased from \$77.1 million to \$169.1 million, while Zuffa’s net income increased from \$76.0 million to \$129.6 million.<sup>620</sup>

279. Professor Fort’s misleading claim is based on Zuffa’s profit margins (measured as a *percentage* of revenue), as opposed to its absolute dollar profits. This ignores elementary

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primarily owned by two individuals and due to the high cash flow nature of the business. This will not be an expense as part of a new ownership.”).

615. Economic profit differs from accounting profit; the former is the difference between total revenue and total economic costs; the latter is the difference between total revenue and total accounting costs. *See, e.g.*, MICHAEL KATZ & HARVEY ROSEN, MICROECONOMICS 199-202 (Irwin McGraw-Hill 3rd ed. 1998).

616. *See* ZFL-2649918, at 965-966.

617. *Id.* The projected savings fall into two categories: “(1) cost savings due to the historical lack of cost controls given the prior family-run, entrepreneurial nature of operations and (2) synergies due to the significant overlap in front and back-office functions across the UFC and WME IMG.”

618. *Id.* at 987.

619. *Fort Report, supra*, at 325.

620. *See* ZFL-1381761 and ZFL-1514836, Zuffa’s consolidated profit and loss statements for 2006 and 2010. *See also* Appendix 2, which details all of Zuffa’s financial documents used in my analyses.

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economics (and common sense), which teaches that firms seek to maximize dollar profit, not profit as a share of revenue.<sup>621</sup> A firm that earns \$1 million of profit on \$10 million in revenue has a profit margin of just 10 percent, yet that firm is obviously worth more than a firm that earns \$10,000 of profit on \$20,000 in revenue (earning a profit margin of 50 percent). According to Zuffa's financials, from 2006 to 2010, Zuffa's revenues increased from \$181.5 million to \$445.8 million, while its profit as a percentage of revenue remained roughly constant, resulting in a large increase in Zuffa's total profit.

280. More generally, the notion of a purported lack of profitability is flatly contradicted by the facts. As explained above, UFC was purchased for \$2 million in 2001 and sold for about \$4 billion in 2016.<sup>622</sup> By any reasonable metric, this represents an extremely high return on investment. Contemporaneous financial analysis confirms that third parties considered Zuffa to be highly profitable: In 2010, Moody's increased Zuffa's rating outlook to "Positive" from "Stable," citing "Zuffa's continued strong revenue and EBITDA growth trends worldwide."<sup>623</sup> Analysis by WME-IMG from mid-2016, just prior WME-IMG's acquisition of Zuffa, characterizes Zuffa as an "Attractive Acquisition Target with Strong Financial Profile,"<sup>624</sup> noting that Zuffa delivers "[c]onsistent and strong top-line growth,"<sup>625</sup> and is "[c]onsistently highly cash generative."<sup>626</sup>

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621. See, e.g., MICHAEL KATZ & HARVEY ROSEN, MICROECONOMICS 207-217 (Irwin McGraw-Hill 3rd ed. 1998).

622. See Part I.A, *supra*.

623. Moody's Investors Service, "Announcement: Moody's Changed Zuffa LLC's (d/b/a Ultimate Fighting Championship or UFC) Rating Outlook to Positive from Stable," (December 1, 2010), *available at* [https://www.moodyys.com/research/Moodys-Changed-Zuffa-LLCs-dba-Ultimate-Fighting-Championship-or-UFC--PR\\_210184](https://www.moodyys.com/research/Moodys-Changed-Zuffa-LLCs-dba-Ultimate-Fighting-Championship-or-UFC--PR_210184) ("The rating outlook change is prompted by Zuffa's continued strong revenue and EBITDA growth trends worldwide").

624. WME-ZUFFA-00001150 at \*5.

625. *Id.*

626. *Id.*

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WME-IMG clearly viewed Zuffa as an attractive acquisition target, as the \$4 billion dollar sales price confirms.

**C. Zuffa’s Claim That The Challenged Conduct Incentivizes Investment in Promotional Platforms and Individual Athletes**

281. As explained in Part III above, the Challenged Conduct suppressed competition, and allowed Zuffa to exercise monopsony power. As economists and antitrust authorities recognize, competition creates incentives for firms to invest, while the absence of competition can harm investment incentives.<sup>627</sup> In addition, as explained in Part VII.D below, evidence from professional sports leagues rejects the hypothesis that employers must wield monopsony power over athletes in order to incentivize investment decisions that ultimately benefit the industry as a whole. In contrast, Zuffa (parroting past arguments made by owners in other professional sports leagues) has claimed that elimination of the Challenged Conduct would remove incentives for competitive investment decisions. As explained below, these claims are unpersuasive.

282. In its 2015 letter to the FTC, Zuffa argues that its multi-fight exclusive contacts enabled the UFC to “promote its events and athletes more than it would have done if athletes were contracted on a one-fight basis,” and “prevent free riding on UFC’s promotional efforts.”<sup>628</sup> To substantiate this claim, Zuffa asserts that it takes 16 months to “Go To Market” for event

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627. For example, when analyzing the potential for anticompetitive effects of a proposed merger, the antitrust agencies’ *Horizontal Merger Guidelines* recognize that anticompetitive mergers may induce firms to reduce investment in capacity, or even to disinvest in pre-existing production capabilities. *Merger Guidelines*, *supra*, §6.3. The *Guidelines* also state that “[e]xplicit or implicit evidence that the merging parties intend to raise prices, reduce output or capacity, reduce product quality or variety, withdraw products or delay their introduction, or curtail research and development efforts after the merger, or explicit or implicit evidence that the ability to engage in such conduct motivated the merger, can be highly informative in evaluating the likely effects of a merger.” *Id.* §2.2.1. *See also* Jonathan Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 ANTITRUST L.J. 575-602, 577 (2007).

628. *Gaglio Letter*, *supra*, at 071.

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planning;<sup>629</sup> if Fighters were not under exclusive multi-fight contracts, Zuffa argues, UFC would be unable to build its events via promotion, as negotiations with 22-26 athletes afresh would undermine planning. As before, Zuffa is attacking a one-fight-contract straw-man; the but-for world could accommodate multi-bout contracts of a much shorter (and more definite) duration.

283. More fundamentally, in a competitive market for Fighter services, Zuffa (or any other MMA promoter) would secure the services of Fighters not by binding them to exclusive multi-bout contracts, but by offering competitive compensation, giving the Fighters clear economic incentives to commit to participating in future bouts, regardless of contract duration.<sup>630</sup> Even if a contract were to expire before the event, so long as the Fighter's pay was contingent on participating in the event, and so long as the compensation was competitive, the Fighter would have every incentive to show up for and compete vigorously at the event. Thus, in the but-for world, Zuffa's "Go To Market" event planning could be disrupted only if Zuffa offered below-market compensation, giving other MMA promoters an opportunity to offer Fighters alternative bouts with compensation more commensurate with their human capital. This is precisely how the competitive process is supposed to work. Moreover, if Zuffa offered to co-promote, it would not have had a similar claimed need to have a ready stable of available Fighters.

284. Zuffa's letter argues that "Without the ability to identify the fighters on the UFC roster, [television] distributors would pay the UFC less, which would in turn have less to share with its athletes."<sup>631</sup> This is pure conjecture, without any basis in evidence or economic theory. Television distributors are interested in Zuffa producing high-quality events that will attract viewers. The precise identities of Zuffa's roster of Fighters in (say) seven years (or whatever the

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629. *Id.*

630. *See Part III.D, infra.*

631. *Gaglio Letter, supra* at 073.

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length of the typical television contract) cannot be known, and in any event, is less critical than Zuffa's offering generic, top-ranked Fighters who are competitive matched and effectively promoted. Again, in a competitive equilibrium, Zuffa could secure the services of top-ranked Fighters provided that it offers competitive compensation, and also through co-promotion.

285. The duration of a television contract can easily exceed the average length of a Zuffa Fighter contract or a Fighter's career. For example, Zuffa's 2011 broadcast agreement with Fox spans seven years.<sup>632</sup> That Zuffa was able to negotiate such an agreement confirms that multi-year television distribution agreements do not require that Zuffa specify the identities of the Fighters to be featured in all future broadcasts over the life of the contract. Indeed, the Fox agreement calls for "high caliber" events without specifying the identities of all participants.<sup>633</sup>

**D. The Experience of Other Professional Sports Leagues and the Sports Economics Literature Suggests That Elimination of the Challenged Conduct Would Benefit Fighters, Consumers, and the MMA Industry As a Whole**

286. Although there is little question that the demand for professional Live MMA Events has expanded significantly in recent years, I have seen no persuasive evidence that the Challenged Conduct was necessary to facilitate this expansion, or that eliminating the Challenged Conduct would somehow impair the development of the industry. To the contrary, the experience of other professional sports leagues suggests that cessation of the Challenged Conduct would enhance competition and benefit the industry as a whole.

287. Before free agency was introduced in other professional sports leagues, it was sometimes argued by sports leagues that it was necessary to exercise monopsony power over

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632. ZFL-1387999 (2011 Fox Agreement spanning January 1, 2012 through December 31, 2018).

633. *Id.* ("At a minimum, the quality of (i) the Fight Card for UFC Live on FBC fights shall be of a high caliber that is commensurate with broadcast television sporting events, and (ii) the Fight Card for all other Live Fight Events (as defined below) shall be equal to or better than the average quality of the Fight Cards for UFC fights telecast on SpikeTV and Versus in 2011.").

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athletes in order to ensure “competitive balance” (a commonly used measure of fan welfare).<sup>634</sup> The claim was that free agency would be harmful to fans and the industry overall, with talent flowing disproportionately to a small number of dominant teams. Yet the introduction of free agency to one professional sport after another has not had this effect.<sup>635</sup> As Stanford sports economist Roger Noll has observed:

The [Leagues’] argument amounts to the claim that collusion by teams in sports leagues is justified because it is efficient and improves the welfare of consumers. This line of argument is rejected by virtually all economic studies of professional sports....[T]he assignment of ownership of an asset (here, a player’s human capital) will not affect the ultimate allocation of that asset in a competitive market... Thus, there is no basis for the claim that anticompetitive restrictions in the player market enhance efficiency....<sup>636</sup>

288. Given that MMA is not a team sport, it unsurprising that Zuffa has not claimed that its conduct can be justified by concerns of competitive balance. Nevertheless, Zuffa’s efficiency justifications, like those of professional sports leagues in the past, are premised on the notion that incentives to invest appropriately in Fighter services, and in promoting the bouts valued most highly by fans, are contingent on imposing restraints on athletes. Zuffa is wrong today for similar reasons that other sports leagues were wrong in the past: The reason that anticompetitive restraints on the market for athlete services cannot be justified in terms of economic efficiency is that, in a competitive market for athlete services, each athlete’s “human capital” will flow to its highest-valued use.<sup>637</sup> In a competitive market, MMA promoters would compete for talent by assembling

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634. See, e.g., Brad R. Humphreys, *Alternative Measures of Competitive Balance in Sports Leagues*, J. SPORTS ECON. 133-148 (2002).

635. Roger Noll, *Buyer Power and Economic Policy*, 72 ANTITRUST L.J. 615-616 (2005).

636. *Id.* Professor Fort himself reaches a similar conclusion in his sports economics textbook. RODNEY D. FORT, SPORTS ECONOMICS 267 (Prentice Hall 3rd ed. 2011). See also JAMES QUIRK & RODNEY D. FORT, PAY DIRT: THE BUSINESS OF PROFESSIONAL TEAM SPORTS 240 (Princeton University Press 1992).

637. See Noll, *supra*, at 616; see also Simon Rottenberg, *The Baseball Players’ Labor Market*, 64(3) J. POL. ECON. 242-258 (1956); Quirk & Fort, *supra*; Mohamed El-Hodiri & James Quirk, *An Economic Model of a Professional Sports League*, 79 J. POL. ECON. 1302 (1971); Roger G. Noll, *Professional Basketball: Economic and Business Perspectives*, in THE BUSINESS OF PROFESSIONAL SPORTS 18 (Paul D. Staudohar & James A. Mangan eds.,

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the highest compensation and benefits and the highest-valued matchups (including a willingness to co-promote). Fighters would offer their services to the MMA promoter that offers the most favorable compensation commensurate with their productivity (their marginal revenue product). This would derive from MMA promoters' deploying Fighters' human capital to its highest-valued use (that is, the matchups valued highest by fans).

289. Far from harming the sport, the increased competition that would prevail in the but-for world would be expected to benefit the industry. Sports economists—including Professor Fort—recognize that fans are harmed when sports leagues exercise market power through coordinated behavior; “fans pay more for less in the presence of market power.”<sup>638</sup> As Professor Fort concludes in an article appearing in *The Economics of Sports*,

Almost all economists see the ultimate culprit [for rising ticket prices and other trends harmful to fans] as market power, which derives from the special legal treatment of leagues. The outcomes are exclusive franchise rights for teams, management of sports leagues as cartels, and a complete stifling of any competing leagues, precisely those indicated by the basic economic theory of market power.<sup>639</sup>

290. Through the Challenged Conduct, Zuffa has achieved results analogous to cartelization of the MMA industry, without even the mitigating factor of having various teams within the UFC competitively bidding on athlete services as other sports leagues have. Another important distinction between Zuffa and certain other sports leagues is that Zuffa does not enjoy special immunity from antitrust enforcement. Fighters, fans, and the industry as a whole would be

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1991); Daniel Sutter & Stephen Winkler, *NCAA Scholarship Limits and Competitive Balance in College Football*, 3 J. SPORTS ECON. 16 (2003).

638. Fort, *supra*, at 409 (“From the fans’ perspective, market power has the general tendency to reduce output and increase price...fans pay more for less in the presence of market power.”). See also ZFL-1212308 at 11-12; see also MICHAEL LEEDS, & PETER VON ALLMEN, *THE ECONOMICS OF SPORTS* 111 (Boston Addison Wesley 2002); see also Roger Noll, *The Economics of Baseball Contraction* 4 J. SPORTS ECON. 383 (2003); see also JAMES QUIRK & RODNEY D. FORT, *HARD BALL: THE ABUSE OF POWER IN PRO TEAM SPORTS* 9 (Princeton University Press 1999).

639. Rodney D. Fort, *Market Power in Pro Sports: Problems and Solutions*, in *THE ECONOMICS OF SPORTS* 8 (ed. WILLIAM S. KERN, W. E. Upjohn Institute for Employment Research 2000).

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expected to benefit from removal of the Challenged Conduct and the introduction of increased competition through antitrust enforcement.

#### CONCLUSION

291. Since at least the beginning of the Class Period, Zuffa has possessed significant monopoly and monopsony power and, through the Challenged Conduct, has substantially foreclosed competition and generated significant anticompetitive effects. As a result, Zuffa has been able to compensate members of each Class below levels that would have prevailed in the absence of the Challenged Conduct, and this injury was widespread across the members of each Class. Aggregate damages to the Bout Class for the Class Period through June 30, 2017 are estimated, depending upon alternative factual underpinnings, at between \$811.2 million and \$1.6 billion. Over the same time period, aggregate damages to the Identity Class are estimated at \$37.2 million. The potential procompetitive justifications for the Challenged Conduct that Zuffa or economists acting on its behalf have asserted in prior proceedings are unavailing. The evidence from other professional sports, and the sports economics literature, as well as my own analysis, indicates that elimination of the Challenged Conduct would likely benefit Fighters, consumers, and the MMA industry generally. Finally, each prong of my analysis involves methods data, and evidence common to all Class Members. If I were asked to perform the same analysis for any single member of either Class, the evidence and analysis would be the same.

\* \* \*



Hal J. Singer

Executed on August 31, 2017.

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## APPENDIX 1: CURRICULUM VITAE

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### Education

Ph.D., The John Hopkins University, 1999; M.A. 1996, Economics

B.S., Tulane University, *magna cum laude*, 1994, Economics.  
Dean's Honor Scholar (full academic scholarship). Senior Scholar  
Prize in Economics.

### Current Position

ECONOMISTS INCORPORATED, Washington, D.C.: Principal  
2014-present.

GEORGETOWN UNIVERSITY, MCDONOUGH SCHOOL OF  
BUSINESS, Washington, D.C.: Adjunct Professor 2010, 2014, 2016.

GEORGE WASHINGTON UNIVERSITY, SCHOOL OF PUBLIC  
POLICY, GEORGE WASHINGTON INSTITUTE FOR PUBLIC  
POLICY, Washington, D.C.: Senior Fellow 2016-present.

### Employment History

NAVIGANT ECONOMICS, Washington, D.C.: Managing Director,  
2010-2013.

EMPIRIS, L.L.C., Washington, D.C.: Managing Partner and  
President, 2008-2010.

CRITERION ECONOMICS, L.L.C., Washington, D.C.: President,  
2004-2008. Senior Vice President, 1999-2004.

LECG, INC., Washington, D.C.: Senior Economist, 1998-99.

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U.S. SECURITIES AND EXCHANGE COMMISSION, OFFICE OF ECONOMIC ANALYSIS, Washington, D.C.: Staff Economist, 1997-98.

THE JOHNS HOPKINS UNIVERSITY, ECONOMICS DEPARTMENT, Baltimore: Teaching Assistant, 1996-98.

#### **Authored Books and Book Chapters**

THE NEED FOR SPEED: A NEW FRAMEWORK FOR TELECOMMUNICATIONS POLICY FOR THE 21ST CENTURY, co-authored with Robert Litan (Brookings Press 2013).

*Net Neutrality Is Bad Broadband Regulation*, co-authored with Robert Litan, in THE ECONOMISTS' VOICE 2.0: THE FINANCIAL CRISIS, HEALTH CARE REFORM AND MORE (Aaron Edlin and Joseph Stiglitz, eds., Columbia University Press 2012).

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*An Antitrust Analysis of the World Trade Organization's Decision in the U.S.-Mexico Arbitration on Telecommunications Services*, co-authored with J. Gregory Sidak, in HANDBOOK OF TRANS-ATLANTIC ANTITRUST (Philip Marsden, ed. Edward Elgar 2006).

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*Authenticom, Inc. v. CDK Global, LLL; and The Reynolds And Reynolds Company*, Case No. 17-cv-318 (W.D. Wis.).

*Manmohan Dhillon et al. v. Anheuser-Busch, LLC et al.*, Case No. 14CECG03039 MBS (Cal. Fresno).

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*Maxon Hyundai Mazda et al. v. Carfax Inc.*, Case No. CV 2680 (AJN) (RLE) (S.D.N.Y.).

*Philip R. Loy and Sharon Loy v. Womble Carlyle Sandridge & Rice, et al.*, Case No. 2014-cv-254012 (Ga. Super.).

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*Sun Life Assurance Company of Canada v. U.S. Bank National Association*, Case No. NO. 2:14-cv-04703-SJF-GRB (E.D. N.Y.).

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Good Intentions Gone Wrong: The Yet- To- Be- Recognized Costs of the Department Of Labor's Proposed Fiduciary Rule (prepared for Capital Group), co-authored with Robert Litan (July 2015).

Bringing Sanity Back to the Spectrum Debate: A Response to CCA's White Paper (prepared for Mobile Future), co-authored with Allan Ingraham (June 26, 2015).

Unlocking Patents: Costs of Failure, Benefits of Success (prepared for Patent Utility) (Feb. 4, 2015).

The Consumer Benefits of Efficient Mobile Number Portability Administration (prepared for Neustar) (Mar. 8, 2013).

Economic Analysis of the Implications of Implementing EPA's Tier 3 Rules (prepared for Emissions Control Technology Association), co-authored with George Schink (June 14, 2012).

Are Google's Search Results Unfair or Deceptive Under Section 5 of the FTC Act? (prepared for Google), co- authored with Robert Litan (May 1, 2012).

Bundles in the Pharmaceutical Industry: A Case Study of Pediatric Vaccines (prepared for Novartis), co-authored with Kevin Caves (July 13, 2011).

Are U.S. Wireless Markets Effectively Competitive? A Critique of the FCC's 14th and 15th Annual Wireless Competition Reports (prepared for AT&T), co-authored with Gerald R. Faulhaber, Robert W. Hahn (July 11, 2011).

Do Group Purchasing Organizations Achieve the Best Prices for Member Hospitals? An Empirical Analysis of Aftermarket

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Transactions (prepared for Medical Device Manufacturers Association), co-authored with Robert Litan (Oct. 6, 2010).

The Economic Impact of Broadband Investment (prepared for Broadband for America), co-authored with Robert Crandall (Feb. 23, 2010).

Why the iPhone Won't Last Forever and What the Government Should Do to Promote Its Successor (prepared for Mobile Future), co-authored with Robert Hahn (Sept. 21, 2009).

The Economic Impact of Eliminating Preemption of State Consumer Protection Laws (prepared for the American Bankers' Association), co-authored with Joseph R. Mason (Aug. 21, 2009).

Economic Effects of Tax Incentives for Broadband Infrastructure Deployment (prepared for the Fiber to the Home Council), co-authored with Jeffrey Eisenach and Jeffrey West (Dec. 23, 2008).

The Effect of Brokered Deposits and Asset Growth on the Likelihood of Failure (prepared for Morgan Stanley, Citigroup, and UBS), co-authored with Joseph Mason and Jeffrey West (Dec. 17, 2008).

Estimating the Benefits and Costs of M2Z's Proposal: Reply to Wilkie's *Spectrum Auctions Are Not a Panacea* (prepared for CTIA), co-authored with Robert W. Hahn, Allan T. Ingraham and J. Gregory Sidak (July 23, 2008).

Irrational Expectations: Can a Regulator Credibly Commit to Removing an Unbundling Obligation? AEI-Brookings Related Publication No. 07-28, co-authored with Jeffrey Eisenach (Dec. 30, 2007)

Is Greater Price Transparency Needed in The Medical Device Industry? (prepared for Advanced Medical Technology Association), co-authored with Robert W. Hahn (Nov. 30, 2007).

Should the FCC Depart from More than a Decade of Market-Oriented Spectrum Policy? Reply to Skrzypacz and Wilson (prepared for CTIA), co-authored with Gerald Faulhaber and Robert W. Hahn (Jun. 18, 2007).

Improving Public Safety Communications: An Analysis of Alternative Approaches (prepared for the Consumer Electronics

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Association and the High Tech DTV Coalition), co-authored with Peter Cramton, Thomas S. Dombrowsky, Jr., Jeffrey A. Eisenach, and Allan Ingraham (Feb. 6, 2007).

The Budgetary Impact of Eliminating the GPOs' Safe Harbor Exemption from the Anti-Kickback Statute of the Social Security Act (prepared for the Medical Device Manufacturers Association) (Dec. 20, 2005).

Reply to "The Life Settlements Market: An Actuarial Perspective on Consumer Economic Value" (prepared for Coventry First), co-authored with Eric Stallard (Nov. 15, 2005).

The Competitive Effects of Telephone Entry into Video Markets (prepared for the Internet Innovation Alliance), co-authored with Robert W. Crandall and J. Gregory Sidak (Nov. 9, 2005).

How Do Consumers and the Auto Industry Respond to Changes in Exhaust Emission and Fuel Economy Standards? A Critique of Burke, Abeles, and Chen (prepared for General Motors Corp.), co-authored with Robert W. Crandall and Allan T. Ingraham (Sept. 21, 2004).

Inter-City Competition for Retail Trade in North Texas: Can a TIF Generate Incremental Tax Receipts for the City of Dallas? (prepared for Harvest Partners), co-authored with Thomas G. Thibodeau and Allan T. Ingraham (July 16, 2004).

An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7 (prepared for BellSouth), co-authored with Robert Crandall (Jan. 6, 2004).

Competition in Broadband Provision and Implications for Regulatory Policy (prepared for the Alcatel, British Telecom, Deutsche Telekom, Ericsson, France Telecom, Siemens, Telefónica de España, and Telecom Italia), co-authored with Dan Maldoom, Richard Marsden, and Gregory Sidak (Oct. 15, 2003).

The Effect of Ubiquitous Broadband Adoption on Investment, Jobs, and the U.S. Economy (prepared for Verizon), co-authored with Robert W. Crandall (Sept. 17, 2003).

The Deleterious Effect of Extending the Unbundling Regime on Telecommunications Investment (prepared for BellSouth), co-authored with Robert W. Crandall (July 10, 2003).

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Letter Concerning Spectrum Auction 35 to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Peter C. Cramton, Robert W. Crandall, Robert W. Hahn, Robert G. Harris, Jerry A. Hausman, Thomas W. Hazlett, Douglas G. Lichtman, Paul W. MacAvoy, Paul R. Milgrom, Richard Schmalensee, J. Gregory Sidak, Hal J. Singer, Vernon L. Smith, William Taylor, and David J. Teece (Aug. 16, 2002).

### **Speaking Engagements**

*Antitrust and Telecommunications*, ABA ANTITRUST IN THE AMERICAS, Mexico City, June 1, 2017.

*Fundamentals—Economics*, ABA SECTION OF ANTITRUST LAW SPRING MEETING, Washington, D.C., Mar. 29, 2017.

*DOL Rule Analysis and FSR's SIMPLE PTE Explained*, FINANCIAL SERVICES ROUNDTABLE, Washington, D.C., Aug. 6, 2015.

*New Principles for a Progressive Broadband Policy*, PROGRESSIVE POLICY INSTITUTE, Washington, D.C., Mar. 13, 2014.

*The Open Internet: Where Do We Go From Here?* PROGRESSIVE POLICY INSTITUTE, Washington, D.C., Jan. 29, 2014.

*Does Platform Competition Render Common Carriage Irrelevant in an IP world?* PROGRESSIVE POLICY INSTITUTE, Washington, D.C. Nov. 20, 2013.

*The 41st Research Conference on Communication, Information and Internet Policy*, TELECOMMUNICATIONS POLICY RESEARCH CONFERENCE, George Mason University School of Law, Arlington, VA, September 27, 2013.

*The Broadband Technology Explosion: Rethinking Communications Policy for a Mobile Broadband World*, Pepperdine School of Public Policy, Menlo Park, CA June 20, 2013.

*Net Neutrality: Government Overreach or the Key to Innovation?*, NORTHWESTERN JOURNAL OF TECHNOLOGY AND INTELLECTUAL PROPERTY EIGHTH ANNUAL SYMPOSIUM, Chicago, IL, Mar. 8, 2013.

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*Internet Everywhere: Broadband as a Catalyst for the Digital Economy*, The Brookings Institution, Washington, D.C., Nov. 27, 2012.

*Can Broadband Power an Economic Recovery?*, Advanced Communications Law & Policy Institute at New York Law School, Washington, D.C., July 10, 2012.

*Using Regression in Antitrust Cases*, UNIVERSITY OF PENNSYLVANIA LAW SCHOOL, Philadelphia, PA, Apr. 12, 2012.

*Mergers: The Road to Duopoly or Path to Competitive Panacea?* NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS, Los Angeles, CA, July 20, 2011.

*State of the Mobile Net*, CONGRESSIONAL INTERNET CAUCUS, Washington, D.C., May 27, 2011.

*Waves of Innovation: Spectrum Allocation in the Age of the Mobile Internet*, INFORMATION TECHNOLOGY & INNOVATION FOUNDATION, Washington D.C., May 17, 2011.

*With or Without Merit, Class Certification Requires Commonality*, ABA SECTION OF ANTITRUST LAW 59TH ANNUAL SPRING MEETING, Washington, D.C., Mar. 30, 2011.

*4th Annual Future of Private Antitrust Enforcement Conference*, AMERICAN ANTITRUST INSTITUTE, Washington, D.C., Dec. 7, 2010.

*Jobs and Technology*, NEW DEMOCRATIC LEADERSHIP COUNCIL, Washington, D.C., Sept. 22, 2010.

*Regulation and Broadband*, ADVANCED COMMUNICATIONS LAW & POLICY INSTITUTE, NEW YORK LAW SCHOOL, New York, N.Y., July 14, 2010.

*13th Annual Symposium on Antitrust*, GEORGE MASON LAW REVIEW, Washington, D.C., Feb. 4, 2010.

*Broadband Infrastructure and Net Neutrality*, ADVISORY COMMITTEE TO THE CONGRESSIONAL INTERNET CAUCUS' STATE OF THE NET, Washington, D.C., Jan. 22, 2010.

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*The Consequences of Net Neutrality Regulations*, AMERICAN CONSUMER INSTITUTE CENTER FOR CITIZEN RESEARCH, Washington, D.C., Nov. 19, 2009.

*Wireless Innovation Luncheon*, MOBILE FUTURE, Washington, D.C., Nov. 3, 2009.

*Second Life Settlements & Longevity Summit*, INSURANCE-LINKED SECURITIES & LIFE SETTLEMENTS, New York, N.Y., Sept. 30, 2009.

*Perspectives on Investment and a National Broadband Plan*, AMERICAN CONSUMER INSTITUTE, Washington, D.C., Sept. 4, 2009.

*Markets and Regulation: How Do We Best Serve Customers?*, Wireless U. Communications Policy Seminar, UNIVERSITY OF FLORIDA PUBLIC UTILITY RESEARCH CENTER, Tampa, FL, Nov. 13, 2008.

*The Price Of Medical Technology: Are We Getting What We Pay For?* HEALTH AFFAIRS BRIEFING, Washington, D.C., Nov. 10, 2008.

*Standard Setting and Patent Pools*, LAW SEMINARS INTERNATIONAL, Arlington, VA., Oct. 3, 2008.

*The Changing Structure of the Telecommunications Industry and the New Role of Regulation*, INTERNATIONAL TELECOMMUNICATIONS SOCIETY BIENNIAL CONFERENCE, Montreal, Canada, June 26, 2008.

*The Debate Over Network Management: An Economic Perspective*, AMERICAN ENTERPRISE INSTITUTE CENTER FOR REGULATORY AND MARKET STUDIES, Washington, D.C., Apr. 2, 2008.

*Merger Policy in High-Tech Industries*, GEORGE MASON UNIVERSITY SCHOOL OF LAW, Washington, D.C., Feb. 1, 2008.

*Telecommunications Symposium*, U.S. DEPARTMENT OF JUSTICE ANTITRUST DIVISION, Washington, D.C., Nov. 29, 2007.

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*Wireless Practice Luncheon*, FEDERAL COMMUNICATIONS BAR ASSOCIATION, Washington, D.C., Nov. 29, 2007.

*Association for Computing Machinery's Net Neutrality Symposium*, GEORGE WASHINGTON UNIVERSITY, Washington, D.C., Nov. 12, 2007.

*Regulators' AdvanceComm Summit*, NEW YORK LAW SCHOOL, New York, N.Y., Oct. 14, 2007.

*Annual Conference*, CAPACITY USA 2007, New York, N.Y., Jun. 26, 2007.

*William Pitt Debating Union*, UNIVERSITY OF PITTSBURGH, SCHOOL OF ARTS & SCIENCES, Pittsburgh, PA., Feb. 23, 2007.

*Annual Conference*, WIRELESS COMMUNICATIONS ASSOCIATION INTERNATIONAL, Washington, D.C., June 27, 2006.

*Annual Conference*, MEDICAL DEVICE MANUFACTURERS ASSOCIATION, Washington, D.C., June 14, 2006.

*Annual Conference*, ASSOCIATION FOR ADVANCED LIFE UNDERWRITING, Washington, D.C., May 1, 2006.

*Entrepreneur Lecture Series*, LAFAYETTE COLLEGE, Easton, PA., Nov. 14, 2005.

#### **Editorials and Magazine Articles**

*The Future of Net Neutrality: What Will the Court Decide*, FOREIGN AFFAIRS, Mar. 16, 2016, co-authored with Robert Litan.

*Obama's Big Ideas for Small Saves: 'Robo' Financial Advice*, WALL STREET JOURNAL, July 21, 2015, co-authored with Robert Litan.

*How the FCC Will Wreck the Internet*, WALL STREET JOURNAL, May 28, 2015

*The FCC's Incentive Auction: Getting Spectrum Right*, PROGRESSIVE POLICY INSTITUTE PAPER, Nov. 2013.

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